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Providing a Customer-Centric Knowledge Model Based on Individual Insurers' Loyalty Through an Information Registration Approach

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ABSTRACT

The research aimed to introduce a customer-oriented knowledge model based on the loyalty of individual insurers using an information recording approach. The qualitative research method was systematically conducted, employing the grounded theory approach through interviews with experts in the insurance industry. Fifteen individuals were selected through targeted sampling. The collected data were analyzed using NVivo software, and the relevant model was presented. According to Strauss-Corbin's categories, there are 6 causal conditions: suitability of insurance policy conditions, rating of customers based on special attention to specific customers, rating of customers based on "need level" for insurance services, empowerment of employees and managers, brand image, confidence, company credibility, service quality, and security. Additionally, there are 2 background conditions (establishment of knowledge management and organizational structure), intervening conditions (social missions), 6 strategies (discount/incentive schemes, organization of business processes, club launch customers, policyholder loyalty programs, establishing customer-centric strategies, and relationship marketing), and outcomes (loyalty, customer lifetime value, repeat purchases, and customer referrals). Data mining enables insurance companies to utilize existing data to identify customer behavior patterns. By identifying and developing services based on the actual needs of customers, insurance companies can enhance and refine their services. Through the utilization of existing data on policyholder loyalty, insurance companies can accurately pinpoint customer behavior patterns, needs, and preferences. **©authors**

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1. Introduction

Customer-oriented knowledge as a strategic approach emphasizes a profound understanding of customers' needs, preferences, and behaviors (Mintz et al., 2023; Kumar, 2024). This concept relies on the idea that by having complete knowledge of customers, companies can make significant improvements in services, products, and customer experience (Kassemeier et al., 2022; Patil & Syam, 2018). One of the most important factors in understanding customers at Orbital is the collection and detailed analysis of customer data. This includes data on purchase history, transactions, preferences, reviews, and customer interactions with the company (Lawrence et al., 2019). By utilizing data analysis methods such as data mining, machine learning, and business intelligence, it is possible to identify patterns and insights that lead to a better understanding of customers. One of the main goals of customer-oriented knowledge is personalized communication (Zhang et al., 2021). Chen et al. (2019) state that using customer data and knowledge, companies can personalize the customer experience and make their customers feel recognized and valued (Yu et al., 2021; Rahmati et al., 2023). These personalized communications can lead to customer loyalty, increased revenue, and enhanced customer satisfaction (Yang et al., 2022). Customer-oriented knowledge is a continuous process that requires ongoing evaluation and improvement (Alves Gomes et al., 2023). By analyzing customer feedback, companies can identify their strengths and weaknesses and take appropriate actions to improve performance and customer experience (Zhang et al., 2020; Wu et al., 2022). This process helps companies provide the best services to their customers, ensuring continuous growth and development, and maintaining competitiveness in the market. Loyal customers in the insurance industry enjoy numerous benefits, such as boosting insurance companies' profitability, cutting down on marketing expenses, increasing company sales, and reducing sensitivity to market fluctuations. Insurance companies generate more revenue than the cost of insurance premiums (Tsai et al., 2015; Tabianan et al., 2022).

Extracting customer insights based on the loyalty of individual policyholders is one of the most crucial issues in the insurance industry. The loyalty of insurance customers not only reflects their satisfaction with the services provided but also plays a crucial role in attracting and retaining customers (Kanchanapoom et al., 2022; Mahammadi Torkamani et al., 2024). Different methodologies and tools can be used to extract customer knowledge based on the loyalty of individual insurers (Nguyen, 2021). Information and data-driven techniques are crucial for enhancing customer loyalty. Today, companies collect large amounts of information from their customers and utilize advanced data mining and data analysis techniques to extract valuable insights that enhance customer loyalty. One of the important data-driven techniques is customer behavior analysis. By analyzing customers' behavioral patterns and understanding their preferences, companies can gain insight into customers' needs and desires, allowing them to personalize their services and products accordingly (Hjort et al., 2013; de Marco et al., 2021). This action leads to increased customer satisfaction and, consequently, enhances their loyalty. In addition, the utilization of advanced machine learning and artificial intelligence techniques is also effective in enhancing customer loyalty (Nilashi et al., 2021). These techniques help companies identify more complex patterns in customer data and implement various strategies based on them. These strategies include predicting customer behavior, providing personalized offers, and improving service processes, all of which help increase customer loyalty (Peker et al., 2017; Dogan et al., 2018). The use of information and data-driven techniques helps companies to stay

constantly aware of changes in customer needs and preferences and to react quickly (Deng & Gao, 2020). This dynamic relationship with customers makes them feel noticed and valued, which is crucial for enhancing customer loyalty. A common solution is to use data analysis methods. By collecting data on policyholder performance and loyalty, it is possible to identify patterns and insights that have contributed to customer loyalty. These patterns can include factors such as the length of the insurance period, the number of claims, and customer satisfaction with insurance services. Then, by employing data analysis methods, it is possible to identify customers with a higher likelihood of loyalty (Griva et al., 2021). In addition, marketing studies and customer research can also help extract customer knowledge and loyalty. By conducting interviews, surveys, and focus groups, you can accurately identify customer needs and preferences and better understand the trends that lead to their loyalty. This information can help insurance companies design strategies to maintain and expand customer loyalty, ultimately enhancing their financial performance and profitability.

2. Literature Review

Knowledge of customer orientation

Customer-oriented knowledge is a strategic approach in business management that emphasizes improving the experience and relationship with customers based on a deep understanding of the needs, preferences, and behaviors of customers (Abbasimehr & Shabani, 2022). In this approach, information and knowledge received from customers are considered valuable assets that must be carefully collected, analyzed, and exploited (Dogan et al., 2022). In customer-oriented knowledge, the focus is on understanding the customer as a unique individual. This recognition is achieved by collecting data related to purchase history, transactions, reviews, and customer interactions (Chalupa et al., 2022). Using data analysis and data mining techniques, customer behavior patterns and needs are identified to develop personalized services, enhance customer experience, and attract and retain customers. This approach not only helps increase customer loyalty but also leads to enhanced customer satisfaction, reduced turnover rates, and increased business revenue and profitability (Griva, 2022).

Individual insurance

Individual insurance is a type of insurance that individuals purchase to protect themselves against various risks. In this type of insurance, each individual issues an insurance policy for themselves as an independent person. Insurance premiums are paid, and coverage conditions are determined based on their individual condition and needs. Individual insurance can cover various events such as health insurance, car insurance, home insurance, life insurance, etc. People typically select different types of insurance based on their personal needs and circumstances. Individual insurance provides a person with a sense of security and peace of mind by offering a safe and reliable financial cover. This type of insurance allows individuals to protect themselves against unfortunate accidents and financial losses caused by them, helping to mitigate the harmful effects of such incidents. Individual insurance provides assurance to the policyholder that in the event of a loss, their finances will be managed in a manner that minimizes the extent of damage as much as possible. In general, individual insurance serves as a crucial financial and security tool, playing a significant role in risk management and safeguarding people's assets and lives. In this regard, several research studies have been conducted in line with the current research.

Individual insurance and knowledge share a symbiotic relationship that is deeply intertwined. Knowledge plays a pivotal role in guiding individuals to make informed decisions regarding their insurance needs. A well-informed individual understands the intricacies of various insurance products, comprehends

the terms and conditions, and can assess their risks accurately. This knowledge empowers individuals to select insurance policies that align with their specific circumstances, ensuring adequate coverage while avoiding unnecessary expenses. Conversely, individual insurance enhances knowledge by fostering risk awareness and financial literacy. Through the process of obtaining insurance, individuals learn about different types of risks, the importance of protecting assets, and the mechanisms of risk management. This knowledge equips individuals with the tools to navigate complex financial landscapes, make prudent choices, and safeguard their future well-being effectively.

Moreover, individual insurance often incentivizes individuals to engage in continuous learning and risk mitigation strategies. As individuals become more knowledgeable about potential risks and their consequences, they are more likely to adopt preventive measures to minimize these risks. For instance, someone with comprehensive health insurance coverage may be prompted to prioritize preventive healthcare measures and maintain a healthier lifestyle to avoid costly medical treatments. Similarly, homeowners with property insurance may invest in security systems or implement safety measures to mitigate the risk of burglary or accidents. Thus, individual insurance not only serves as a financial safety net but also promotes a culture of risk awareness and proactive risk management, ultimately contributing to the overall knowledge and resilience of individuals and communities.

Kwan et al. (2020) investigated the impact of brand equity and e-brand experience on e-customer loyalty through e-satisfaction. This study was conducted as a survey using a questionnaire. The statistical population of the study included three major cities in Vietnam, with 928 Internet companies participating in the research. The results of the study showed that electronic brand experience had a significant effect on electronic satisfaction. The findings also indicated that brand awareness had a significant positive effect on customer loyalty towards electronic products. Tartaglion et al. (2019) conducted a systematic study on customer loyalty and brand management. In this study, 337 relevant sources from 2000 to 2018 were examined on customer loyalty and brand management. The results showed that the newer articles emphasized more on customer loyalty and the importance of companies to it. Also, customer loyalty was considered one of the pillars of brand management. Inderpal et al. (2019) investigated the predictors of customer loyalty in the insurance and banking industry and its impact on business performance. The statistical sample included Indian insurance companies and banks, as well as their customers. The results showed that customer loyalty had a significant effect on business performance in both the insurance and banking industries. Factors such as the company's or bank's credibility, service quality, and honesty significantly influenced customer loyalty.

3. Method

In the current research, the components of the model were identified using qualitative research methodology, with consideration given to achieving theoretical saturation. In qualitative research, during the sampling process, it is essential to consider the diverse groups and strata of individuals who possess valuable information and experiences relevant to the research topic. This initial stage of research involves identifying these groups and strata to ensure that the selected samples adequately represent the required information and experiences.

The foundation of grounded theory data models, which are mathematical patterns built on real-world data and used for predicting behaviors and future events, can be highly beneficial in insurance design. These models can assist insurance companies in improving their risk prediction patterns and assessing the probabilities of damages more accurately. By analyzing data relevant to claim

histories, insurance companies can identify patterns that better evaluate risks and provide accurate pricing for insurance policies.

Moreover, grounded theory data models can help insurance companies enhance personalized insurance approaches. By analyzing data collected from customers, these models can uncover patterns indicating which individuals require what types of insurance coverage. This information enables insurance companies to offer insurance policies with better terms and technologies for their customers, thus enhancing customer satisfaction and improving business performance. Overall, grounded theory data models help insurance companies improve their decision-making processes and respond more effectively to the needs of their customers.

We are going to visit. (Forastekhah, 2015). The data collection method involved in-depth interviews, and ultimately, 15 samples were selected for the interviews. It is usually recommended to use an interview protocol to record information during the interview. In this study, a guide or protocol for conducting interviews was developed to identify the main themes and key questions. To assess quality, this qualitative research focuses on the validity and reliability of four tests: verifiability (providing feedback and results after conducting interviews), acceptability or believability (obtaining opinions from interviewees about the results), transferability (emphasizing common concepts when analyzing results and presenting them to interviewees), and reliability (often involving interviews with multiple individuals in each case and examining cases from various perspectives). This approach differs from quantitative research methods.

4. Findings

The results of the data analysis were explained in 26 main dimensions. Finally, by extracting the relationships between them, a comprehensive and localized model has been presented to achieve a correct understanding of the loyalty model of individual insurers.

Open coding

Open coding is the initial step in the data interpretation process. Here, the meaningful unit of data can be a small sentence, a part of a clause, or one or more clauses from the entire textual content. After conducting each interview, open coding was initiated. Each line or paragraph containing points relevant to the research question was assigned a tag of words indicating that point. Afterwards, the codes obtained from the interviews were compared with each other to group similar codes together. Second-level or centralized coding involves identifying overlapping and similar codes by comparing their descriptions. By sorting and determining the codes or concepts, similar and common codes are grouped into a single category. Therefore, the amount of data (codes-concepts) was reduced to a specific and limited number of major categories. Therefore, each category includes a number of similar, overlapping, and synonymous codes. It should be noted that some initial codes that were not relevant to the research topic have been removed at this stage.

Axial coding

In axial coding, the categories are related to the concepts obtained in the open coding stage, and these relationships are examined through the data. In axial coding, the researcher compares the categories and concepts obtained from the open coding stage, and combines, integrates, reduces, and summarizes them. At this stage, codes containing similar meanings are grouped together under a larger abstract concept that encompasses all of them and creates categories.

Table 3. *Axial coding results*

Concepts	Category	Categorical cluster
Appropriate payment conditions, facilitation of renewal, specific tariffs, easy payment conditions, ability to pay the policyholder and economic conditions, ability to pay insurance premiums, long-term installments, ability to pay for essential insurances in the household portfolio, significant damage cost, appropriate return Policy	Suitability of the insurance policy	Casual
Focusing on the main and key customers, individual and personal attention to the customer, special communication or preferential treatment with the customer	Rating of customers with the criteria of paying special attention to specific customers	
Prioritizing customers, understanding specific customer needs, identifying and classifying customers	Rating of customers with the criteria of "need level" for insurance services	
Holding educational seminars, periodic training of employees and managers, providing correct behavioral characteristics, monitoring the work of employees and managers, creating motivation, periodic performance evaluation of employees and managers, stylish and neat appearance of employees, compassion of employees in solving problems, performing activities without errors, desire The high heart of the employees in providing customer service, the rating of the employees in the face of certain insurers	Empowering employees and managers	
The perceived value of the brand, the perception of the brand as a good experience, raising the position of the insurance brand in the mind of the customer, the special position of the brand in the mind of the customer.	Brand image	
Providing services without defects, feeling secure in transactions, performing services correctly, performing services reliably	confidence	
Competitive prices, having competitive advantages, history of the company, development and expansion of various insurance policies, providing integrated services, monitoring and control components.	Company credit	
Having packages of services, the insurance representative being responsive, solving conflicts from the insurance company, providing services at the promised time, proper follow-up, appropriate response of employees, speed in providing services, good behavior of employees with customers, good performance of the insurance company, responsive Being an insurance agent	the quality of service	
Reducing the costs of insurers, speeding up the payment of claims, avoiding one-time price increases, avoiding being forced to pay additional and double fees during the period of one year, creating a sense of confidence in the customer, the cost of significant claims	Security	
Trust the insurance company	Focal point	
Acceptance of insurance by the customer		
The customer's decision to buy		
Innovation in the process of providing services, using information technology capabilities, using basic knowledge workers, providing electronic services, using modern technologies, integrating information, using social media technologies.	Establishment of knowledge management	Contextual
Development of infrastructure as a distinguishing feature in the world, suitable physical environment, implementation of a coordinated customer-oriented business strategy, creation of an organizational culture supporting customer relationship management, application of a comprehensive definition of customer relationship management, implementation of an integrated information technology environment	Organizational Structure	
Studying and culturalization and identification of popular, useful and familiar culture	Social missions	Intervening
Creating continuous communication other than just at the time of purchasing the insurance policy		
Fulfilling other customer needs including guarantees and other activities		
Training and improving the level of legal and legal knowledge of insurance policy holders in benefit		
Occasional discounts, providing value-added services to customers, increasing the financial benefits of the Internet sales campaign program, additional discounts when registering and receiving the same coupon regardless of the date, discounts or points based on cumulative purchases, targeted rewards, providing exclusive solutions, for example For couples	Discount / incentive schemes	Strategy
Using the experiences of other companies and countries, using past experiences, optimality of advertising, using feedback from previous customers, positive and negative feedback about the insurance company, customer relationship management, paying attention to green marketing items in issuing green marketing insurance policies.	Organization of business processes	
Improving the position of member insurers, customer interaction with the insurance company, customer interaction plans, receiving additional discounts for member users, receiving points based on past purchases	Setting up a customer club	
Respecting policyholders, supporting policyholders, establishing long-term relationships with policyholders, giving self-esteem to policyholders, respecting the rights of policyholders, keeping information confidential, correct behavior of personnel, receiving feedback from buyer opinions, creating strong mutual relationships with customers. Willingness to help customers, create social respect for	Policyholder loyalty programs	

customers		
Providing accurate information about different plans, providing new services to policyholders, providing services focusing on the expectations of policyholders, helping policyholders make the right decisions, giving public awareness of the advantages and benefits of different insurance policies, ease of using the services provided. done	Establishing customer-centric strategies	
Ethics, applying correct and correct marketing principles, using new marketing methods, advertising as a purchase guide, technology-based customer relationship management, creating long-term relationships with customers through social networks.	Affiliate marketing	
Insurer's commitment, advertising of the company by the customer to other customers, word of mouth advertising	Loyalty	Consequence
Continuity of buying insurance products, long-term customer relations with the insurance company, annual stability due to tariff increase	Customer lifetime	
Renewal years, purchase renewal	Repeat purchase	
Number of received services, use of other company services	Customer referrals	

Selective coding

After axial coding, the final stage of coding is selective coding. At this stage, the categories that have been used are theoretically saturated, and the researcher should select the core category or decide to create a new category. In fact, the wired model deals with the formal array of the category and its analysis and explanation. This process involves combining the core category and refining and decorating the resulting structures. In figure 1, we can see the models related to each category. The software displays the subsets as subsystems, representing the systems of each category. These subsystems consist of the same concepts that have been elevated to the main category after the coding process. At the end of the qualitative phase of the research and after coding the data, the main categories were interconnected in the form of a paradigm model (meaning a contextual model) centered around the core category.

To validate, the Kappa statistic has been employed, yielding a value of 0.744. Therefore, the result is confirmed.

5. Discussion

According to the study and analysis of the data obtained on the loyalty of individual insurers, it can be said that the components of loyalty, such as customer lifetime value, repeat purchase rate, and customer referrals, are very effective in determining the loyalty status of customers. These components interact and determine their impact on customer loyalty behavior. On the other hand, customer longevity plays a crucial role as one of the main components of loyalty. Longer-lifetime customers are more likely to be willing to continue working with the company, indicating their loyalty. Also, repeat purchases, as one of the components of loyalty, indicate the level of customer satisfaction and play a crucial role in establishing and sustaining loyalty. In addition, customer referrals can also be considered as another indicator of loyalty.

Customers who refer others to a company demonstrate trust and loyalty to that company's brand and services. As a result, paying attention to these components and analyzing them correctly can help improve the loyalty status of individual policyholders. This, in turn, can provide appropriate solutions to maintain and attract their loyalty. In the context of identified strategies, providing discounts and incentive plans can help increase policyholders' loyalty. These schemes can include special discounts for loyal customers, new insurance policies, or rewards for high-profile customers. Casalo et al. (2008) stated that to enhance the customer experience, business processes should be structured to effectively communicate with customers while being optimal in terms of finances and time. Gree et al. (2018) also demonstrated that establishing a customer club with unique features can enhance customer loyalty. This club may offer exclusive services,

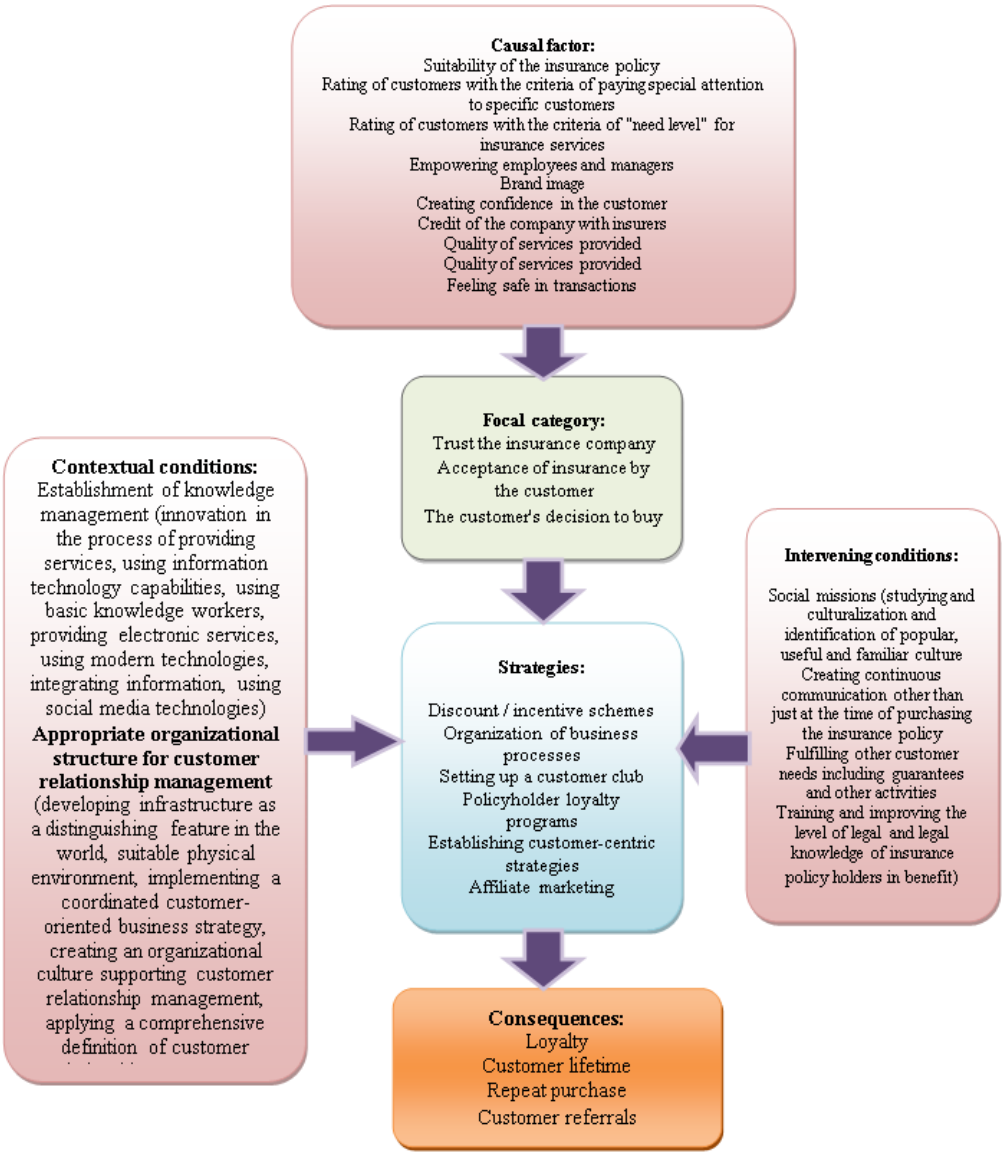

Figure 1. *A Customer-Centric Knowledge Model Based on Individual Insurers'* ***Loyalty***

events, and special discounts for its members. According to Lee et al. (2015), the establishment of efficient loyalty programs for policyholders can enhance their loyalty. These programs can include points for additional purchases, special discounts, or other rewards. Focusing on customer-oriented strategies, such as understanding the needs and preferences of customers and providing tailored services, can help enhance policyholders' loyalty. In addition to these cases, establishing continuous and effective communication with customers through relational marketing methods can help enhance policyholders' loyalty. This includes personalized communications, sending relevant news and announcements, and creating active interactions with customers. Rahmati et al. (2023) stated that knowledge helps companies maintain customer trust and strengthen relationships through appropriate planning and strategies.

6. Conclusion

Extracting customer insights based on the loyalty of individual policyholders is crucial in the insurance industry. This information extraction enables insurance companies to utilize available data to identify customer behavior patterns. This, in turn, helps them enhance and develop their services according to the actual needs of customers. By utilizing existing data on policyholder loyalty, insurance companies can accurately identify customer behavior patterns, needs, and preferences. This profound understanding of customers

enables companies to enhance their services, optimize their marketing strategies, and address customer needs promptly and accurately. By analyzing policyholder loyalty data, insurance companies can predict which customers may be more loyal and identify factors that can enhance their loyalty. This information helps companies adopt appropriate strategies to maintain and strengthen customer loyalty. By analyzing policyholder loyalty data, insurance companies can identify factors that directly impact customer loyalty and revise their processes and services to enhance the customer experience. These measures can not only increase customer loyalty but also enhance customer recognition of the brand and improve the company's image. In general, extracting knowledge from policyholders' loyalty allows insurance companies to adopt more optimal strategies to maintain and develop relationships with their customers. By relying on the available data, companies can improve their performance and profitability.

Developing a customer-centric knowledge model rooted in individual insurers' loyalty via an information registration approach holds significant promise for enhancing the insurance industry's efficacy and customer satisfaction. By leveraging data gathered through customer interactions, such a model can offer invaluable insights into individual preferences, behaviors, and evolving needs. This granular understanding allows insurers to tailor their services and products more precisely, thereby fostering stronger relationships with customers. Moreover, the knowledge model facilitates proactive engagement strategies, enabling insurers to anticipate customer requirements and provide timely, relevant assistance. Through this personalized approach, insurers can cultivate loyalty, encouraging customers to remain with the company for the long term, thereby bolstering retention rates and overall profitability.

Furthermore, the implementation of a customer-centric knowledge model underscores a commitment to continuous improvement and responsiveness within the insurance sector. By systematically registering and analyzing customer information, insurers can identify trends, gaps, and areas for refinement in their offerings. This iterative process empowers insurers to adapt swiftly to market dynamics and emerging customer demands, ensuring their relevance and competitiveness. Moreover, as insurers prioritize customer satisfaction and loyalty, they contribute to a positive industry reputation and customer trust. Ultimately, a customer-centric knowledge model fosters a mutually beneficial relationship between insurers and customers, driving sustainable growth and excellence in service delivery within the insurance landscape.

Based on the obtained results, the following suggestions are provided:

-Utilizing statistical models and artificial intelligence to analyze the loyalty behavior of policyholders. These models can identify customer behavior patterns and evaluate factors such as attendance at insurance payments, number of claims, and other loyalty-related factors.

- Utilizing predictive models to estimate and forecast customer loyalty. By analyzing past and current data, these models can predict future customer behavior and assist insurers in implementing optimal strategies to maintain customer loyalty.

- Developing business intelligence (BI) systems to deliver pertinent data and valuable analytics to insurance managers. These systems can provide information on the current and future state of customer loyalty, assisting managers in making informed decisions to effectively manage the loyalty of individual policyholders.

- Utilizing modeling and data analysis techniques to identify crucial factors influencing customer loyalty. These models can identify factors such as satisfaction, policyholder value, service experience, and other variables to assist

insurers in adopting more effective strategies to enhance individual customer loyalty.

- Designing personalized offering systems based on customers' personal and behavioral data. These systems can offer personalized services and promotions to individual customers based on their unique characteristics and previous interactions, thereby enhancing customer loyalty.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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